

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

<i>In re</i> Application of	)	
	)	Group Art Unit: 3765
Swatee N. SURVE	)	
	)	Examiner: Robert J. Muromoto, Jr.
Serial Number 10/077,548	)	
	)	Attorney Reference: 005127.00138
Filed: February 14, 2002	)	
	)	
For: DEPOSITION OF ELECTRONIC	)	
CIRCUITS ON FIBERS AND OTHER	)	
MATERIALS	)	

**APPEAL BRIEF**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Alexandria, VA 22313

Sir:

Appellant hereby appeals to the Board of Patent Appeals and Interferences from a decision of the Primary Examiner on June 2, 2004, finally rejecting claims 1-25 in the above-captioned patent application.

***(1) Real Party In Interest***

The real party in interest is Nike Inc., a U.S. corporation having a place of business at One Bowerman Drive, Beaverton, Oregon.

***(2) Related Appeals and Interferences***

Appellant and his legal representatives are unaware of any appeals or interferences related to the subject appeal.

02/10/2005 AWONDAF1 00000042 190733 10077548  
01 FC:1402 500.00 DA

### ***(3) Status of Claims***

Claims 1-25 (reproduced for reference in the Claims Appendix) are pending in the application, with claims 1 and 12 being independent claims. In a first Office Action dated December 22, 2003 (reproduced for reference in the Evidence Appendix) and a final Office Action dated June 2, 2004 (reproduced for reference in the Evidence Appendix), the Primary Examiner rejected each of claims 1-25. Appellant therefore appeals the rejection of these claims.

### ***(4) Status of Amendments***

No amendments have been made to the claims during the pendency of this application.

### ***(5) Summary of Invention***

The present invention relates to a method of forming an article of wear by forming at least one electronic component on a fiber, interlacing at the fiber with other fibers to form a piece of fabric, and then forming an article of wear with the fabric. (See, e.g., page 4, paragraph 16 to page 8, paragraph 27, and page 9, paragraph 9. As described in the specification, the electronic component is formed on the fiber by spraying stock materials onto the fiber through a laser, so as to deposit the component on the fiber. (*Id.*, and particularly page 5, paragraph 19 to page 6, paragraph 20.) With some embodiments, a substrate is first formed on the fiber before the electronic component. (See, e.g., page 4, paragraph 16 to page 5, paragraph 17.) Some embodiments alternately or additionally form a protective layer over the electronic component. (See, e.g., page 7, paragraph 25 to page 8, paragraph 26.) Still other embodiments of the invention relate to a piece of clothing material and at least one electrical component formed over a surface of the piece of clothing material. (See, e.g., page 9, paragraph 30.)

### ***(6) Grounds Of Rejection To Be Reviewed<sup>1</sup>***

The following grounds of rejection are presented to the Board of Patent Appeals and Interferences for consideration in this appeal:

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<sup>1</sup> In the Office Action of June 2, 2004, the Primary Examiner objected to the Abstract (1) for using the phrase "are disclosed" and (2) for reciting purported merits of the invention. While Appellant respectfully traversed this objection, Appellant nonetheless amended the Abstract to address the Primary Examiner's objection. The status of this objection, however, was not addressed in the Advisory Action.

- (a) Claims 1, 3-22, 24 and 25 have been rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,210,771 to Post et al. (reproduced for reference in the Evidence Appendix).
- (b) Claim 2 has been rejected under 35 U.S.C. §103 over U.S. Patent No. 6,210,711 to Post et al. patent in view of U.S. Patent No. 6,472,029 to Skaszek (reproduced for reference in the Evidence Appendix).
- (c) Claim 23 has been rejected under 35 U.S.C. §103 over U.S. Patent No. 6,210,711 to Post et al. patent in view of U.S. Patent No. 5,555,490 to Carroll (reproduced for reference in the Evidence Appendix).

**(7) Arguments**

Claims 1, 3-22, 24 and 25 have been rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,210,771 to Post et al. Appellant respectfully traverses this rejection, and asks for its reconsideration.

Claims 1 and 3-11 recite a method of forming an article of wear that includes forming at least one electronic component on a fiber. Claims 12-22, 24 and 25 then recite an article of wear including at least one electrical component formed over a surface of a piece of clothing material. Appellant respectfully submits that these recited features of the invention are not taught or suggested by the Post et al. patent.

In making this rejection, the Primary Examiner states that:

Post discloses the fabrication of electronic devices and circuits, and in particular to the integration of such devices and circuit into textiles (fabrics, clothing material). (See Office Action, page 2, lines 15-16.)

Appellant does not dispute this assertion, or the Primary Examiner's understanding of the disclosure in the Post et al. patent. Appellant submits, however, that no reasonable interpretation of the Post et al. patent can lead to the conclusion that this patent teaches or suggests the features of the invention recited in claims 1, 3-22, 24 and 25.

The Post et al. patent describes two techniques for creating electrical circuits using fibers.

In the first technique,

the [Post et al.] invention achieves selective, anisotropic electrical conductivity by utilizing conductive fibers running along one weave direction and non-conductive fibers running along the opposite direction. The conductive fibers serve as

electrical conduits capable of carrying data signals and/or power, and may be connected, e.g., to electrical components soldered directly onto the fabric. (See Post et al. at column 2, lines 12-20.)

With the second technique,

the [Post et al.] invention comprises fabrication of circuit traces and passive electrical components into textiles using threads having selected electrical properties...For example, capacitors can be formed using extended parallel lanes of conductive material separated by non-conductive fabric that serves as a dielectric, or by spaced-apart patches of conductive material. Inductors and transformers can be formed from one or more spiral lengths of conductive material; in the case of a transformer, for example, the spirals may be concentrically disposed and magnetically coupled. (*Id.*, column 3 lines 9-23.)

Thus, the Post et al. discloses four structures that might be interpreted as electronic (or electrical) components: the fibers themselves, electrical components formed by the fibers, the separate electrical components used with the fibers, or the circuit formed by the combination of the fibers and the separate electrical components.

If the Primary Examiner is interpreting a conductive fiber of the Post et al. patent to itself be an electronic component, then this fiber cannot be considered an electronic component formed on a fiber as recited in claims 1 and 3-11. That is, a fiber cannot be formed on itself. Accordingly, this interpretation cannot be stretched to anticipate the express language of these claims. Similarly, an electronic component formed by multiple fibers (e.g., a capacitor or conductor) cannot be considered an electronic component formed on a fiber. Instead, it can at most be characterized as a single electronic component incorporating a fiber or a group of electronic components positioned adjacent to each other. As for the separate electrical components disclosed by Post et al., the Post et al. patent does not teach or suggest forming any of these separate components on a fiber. Instead, the Post et al. patent inherently teaches that these electrical components are formed elsewhere, and then subsequently welded or otherwise attached to a fiber.

With regard to a circuit created by attaching a separate electrical component to a fiber taught by the Post et al. patent (which appears to be the interpretation of the Post et al. patent relied upon by the Primary Examiner), Appellant likewise submits that this combination cannot be considered an electronic component formed on a fiber as expressly recited in the claims. At best, it can only be considered an electronic component that incorporates a fiber. Appellant

respectfully points out that the separate circuit component can reasonable be characterized as a separately formed electronic component placed on a fiber, or as a part forming a larger circuit together with the fiber on which it is placed, but not as both simultaneously solely for the purposes of rejecting a claim, as the Primary Examiner has done. While the Primary Examiner has dismissed Appellant's earlier arguments as "semantics," (see Advisory Action) Appellant is simply trying to point out that the Primary Examiner's reading of the claims onto the disclosure of the Post et al. is internally inconsistent.

In the final Office Action, the Primary Examiner asserted that

A direct quotation from Post reads 'The fibers of the fabric are used to create electrical circuits.' Electrical circuit are certain 'electronic components' under any definition.

Appellants do not dispute this assertion the Primary Examiner, but it does summarizes the Primary Examiner's erroneous reading of the claims onto the Post et al. patent. The Post et al. patent teaches forming electronic components that include a fiber. The claimed invention, however, recites forming an electronic component on a fiber. A fiber can either be part of an electronic component (as taught by the Post et al. patent), or the base on which an electronic component is formed (as recited in the claims). A fiber cannot, however, simultaneously be both part of an electronic component and a separate structure from the electronic component.

Similarly, Appellant respectfully submits that the Post et al. patent does not teach or suggest at least one electrical component formed over a surface of clothing material. Again, if the Primary Examiner interprets a conductive fiber of the Post et al. patent to itself be an electrical component, then this fiber cannot be considered an electrical component formed over a surface of clothing material as recited in claim 1. Rather, the fiber is at best an electrical component that forms a part of a clothing material. Similarly, an electrical component formed by multiple fibers cannot be considered an electrical component formed over a surface of clothing material, but can only be considered an electrical component that forms a part of a clothing material.

With regard to the separate electrical components (e.g., capacitors) disclosed by Post et al., the Post et al. patent inherently teaches that these electrical components are formed elsewhere, and then subsequently welded or otherwise attached to a fiber, as previously noted.

Thus, these separate components are not formed over a surface of clothing material as recited in claims 12-22, 24, and 25. Appellant likewise submits that the combination of a separate electrical component attached to a fiber taught by Post et al. cannot be considered an electrical component formed over a surface of clothing material. Again, Appellant respectfully submits that the separate circuit component can be characterized as an electronic component attached to a clothing surface, or as a part forming a larger circuit in conjunction with the clothing surface, but not as both simultaneously. If the Primary Examiner maintains this rejection, he is invited to explain how any entire structure can be formed on one of its constituent parts.

With particular regard to claims 3, 4, 13 and 14, the Primary Examiner rejected both of these claims based upon the disclosure in the Post et al. patent that

To prevent fibers 110 from making unwanted contact as a result of folding, the fabric 100 may be provided with a non-conductive...coating (e.g., a transparent acrylic coating that may be sprayed on) *following affixation of the electronic components*. (See Office Action, page 3, lines 1-4 citing Post et al., column 4, lines 58-62, *emphasis added*.)

Claims 3 and 13, however, recite the formation a substrate over a surface of the fiber, and then the formation of the electronic component over the substrate (i.e., the substrate is under the electronic component.) It therefore is unclear how the coating disclosed in the Post et al. patent, applied after the affixation of the electronic components, can arguably anticipate the invention recited in claims 3 and 13. In any case, claim 4 then recites forming a protective layer over the at least one electronic component. Claim 14 similarly recites a protective layer formed over the at least one electronic component. Appellant respectfully points out that the single coating taught by the Post et al. patent thus cannot be both under the electronic component, as recited in claims 3 and 13, and over the electronic component as recited in claims 4 and 14.

Regarding claims 6, 8, 16 and 18, each of these claims recites a shield layer. The Primary Examiner has rejected these claims based upon the non-conductive coating disclosed in the Post et al. patent. Appellant respectfully points out, however, that electronic shielding typically is formed of conductive material.

Accordingly, Appellant respectfully submits that the Post et al. patent does not teach or suggest the features of the invention recited in claims 1, 3-22, 24 and 25. Appellant therefore asks that the rejection of these claims be withdrawn.

Next, claim 2 was rejected under 35 U.S.C. §103 over the Post et al. patent in view of U.S. Patent No. 6,472,029 to Skszek. Appellant respectfully traverses this rejection, and courteously asks for its reconsideration as well.

Appellant respectfully submits that one of ordinary skill in the art would not have been led to combine the teachings of the Post et al. and Skszek patents in the manner suggested by the Primary Examiner. Nothing in the Post et al. patent teaches or suggests forming an electrical component by spraying materials at a fiber through a laser. The Skszek patent, on the other hand, does not mention the formation of any type of electronic component. Instead, the Skszek patent suggests that its disclosed fabrication techniques could be used to create strong, abrasion resistant thermally conductive materials for injection molding. (See, e.g., column 1, line 64 to column 2, line 30.) There is simply nothing in either patent to suggest the use of the Skszek techniques to form circuit components, much less on fibers as asserted by the Primary Examiner. Appellant therefore respectfully submits that the combination of the Post et al. and Skszek patents is improper, and asks that the rejection of claim 2 be withdrawn.

Lastly, the Primary Examiner rejected claim 23 under 35 U.S.C. §103 over the Post et al. patent in view of U.S. Patent No. 5,555,490 to Carroll. Appellant respectfully traverses this rejection, and asks for its reconsideration. Appellant again submits that the Post et al. patent does not teach or suggest the features of the invention recited in this claims, and the Carroll patent does not remedy the omission of the Post et al. patent. Moreover, in making this rejection, the Primary Examiner has combined the disclosure of leather materials in the Carroll patent with the use of the electrical fibers taught by the Post et al. patent. As leather does not employ fibers, however, Appellant respectfully submits that one of ordinary skill in the art would not know how these teachings of the Carroll patent and the Post et al. patent could even be combined. Appellant therefore asks that the rejection of claim 23 be withdrawn as well.

#### ***(8) Conclusion***

The rejections submitted in the final Office Action of June 2, 2004 should be reversed for at least the reasons recited above. Allowance of claims 1-25 is, therefore, respectfully requested.

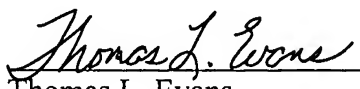
In accordance with 37 C.F.R. §1.192, Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences. A Notice of Appeal was timely filed on October 4, 2004, and

Appellants have attached hereto a Petition for a two month extension of time. Accordingly, an associated Fee Transmittal attached hereto authorizes the Commissioner to charge a fee of:

- (a) \$500.00 for the filing of this Appeal Brief; and
- (b) \$450.00 for the Petition For Extension Of Time.

It is believed that no additional fees are due in connection with this Appeal Brief. Should additional fees be deemed necessary, however, such fees are hereby requested and the Commissioner is authorized to charge deposit account number 19-0733 for the payment of the requisite fee.

Respectfully submitted,

By:   
Thomas L. Evans  
Registration No. 35,805

Banner & Witcoff, Ltd.  
1001 G Street, N.W.  
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Telephone: (202) 824-3000

Dated: February 4, 2005

1. A method of forming an article of wear, comprising:  
forming at least one electronic component on a fiber;\ninterlacing the fiber with other fibers to form a piece of fabric; and  
forming an article of wear with the fabric.

2. The method of forming an article of wear recited in claim 1, wherein the at least one electronic component is deposited on the fiber by spraying stock materials at the fiber through a laser.

3. The method of forming an article of wear recited in claim 1, further comprising:  
forming a substrate over a surface of the fiber,  
wherein the at least one electronic component is formed over the substrate.

4. The method of forming an article of wear recited in claim 1, further comprising:  
forming a protective layer over the at least one electronic component.

5. The method of forming an article of wear recited in claim 4, wherein the protective layer is a layer of insulative material.

6. The method of forming an article of wear recited in claim 4, wherein the protective layer is a layer of shield material.

7. The method of forming an article of wear recited in claim 1, further comprising:  
forming an insulative layer over the at least one electronic component.

8. The method of forming an article of wear recited in claim 1, further comprising:  
forming a shield layer over the at least one electronic component.

9. The method of forming an article of wear recited in claim 1, wherein the at least one electronic component is a transistor.

10. The method of forming an article of wear recited in claim 1, wherein the at least one electronic element is an antenna element.

11. The method of forming an article of wear recited in claim 1, wherein the at least one electronic element is a capacitor.

12. An article of wear, comprising:  
a piece of clothing material; and  
at least one electrical component formed over a surface of the piece of clothing material.

13. The article of wear recited in claim 12, further comprising:  
a substrate formed on the surface of the piece of clothing material;  
wherein the at least one electrical component is formed over the substrate.

14. The article of wear recited in claim 12, further comprising:  
a protective layer formed over the at least one electronic component.

15. The article of wear recited in claim 14, wherein the protective layer is a layer of insulative material.

16. The article of wear recited in claim 14, wherein the protective layer is a layer of shield material.

17. The article of wear recited in claim 12, further comprising:  
an insulative layer formed over the at least one electronic component.

18. The article of wear recited in claim 12, further comprising:  
a shield layer formed over the at least one electronic component.

19. The article of wear recited in claim 12, wherein the at least one electronic component is a transistor.

20. The article of wear recited in claim 12, wherein the at least one electronic element is an antenna element.

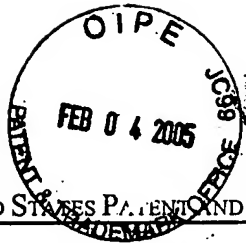
21. The article of wear recited in claim 12, wherein the at least one electronic element is a capacitor.

22. The article of wear recited in claim 12, wherein  
the clothing material is a fabric woven from a plurality of fibers, and  
the at least one electrical component is formed over a surface of one of the plurality of  
fibers.

23. The article of wear recited in claim 12, wherein the clothing material is a natural or synthetic leather.

24. The article of wear recited in claim 12, wherein the clothing material is a plastic.

25. The article of wear recited in claim 12, wherein the clothing material is a composite foam.



CJR

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,548	02/14/2002	Swatee N. Surve	05127.00138	3233
22909	7590	12/22/2003	EXAMINER	
BANNER & WITCOFF, LTD. 1001 G STREET, N.W. WASHINGTON, DC 20001-4597			MUROMOTO JR, ROBERT H	
005127.00138 DECLINING SH			ART UNIT	PAPER NUMBER
			3765	

DATE MAILED: 12/22/2003

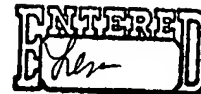
Amend doc: 3.22.04  
Last day: 6.22.04

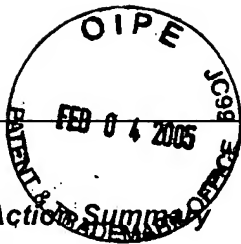
Please find below and/or attached an Office communication concerning this application or proceeding.

RECEIVED

DEC 22 2003

BANNER WITCOFF





Office Action Summary

Application No.

10/077,548

Applicant(s)

SURVE, SWATEE N.

Examiner

Robert H Muromoto, Jr.

Art Unit

3765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

The abstract of the disclosure is objected to because the recitation "Fibers are disclosed..." and the abstract recite the purported merits of the invention. Correction is required. See MPEP § 608.01(b).

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-22, 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Post et al. '771.

Post discloses the fabrication of electronic devices and circuits, and in particular to the integration of such devices and circuits into textiles (fabrics, clothing material). Post discloses a fabric woven with non-conductive fibers in the warp and a conductive fiber in the weft. The conductive fibers 110 may be continuously adjacent along the weft (substrate). The fibers of the fabric are used to create electrical circuits. The leads of a resistor and a **capacitor** 122 (claim 11, 21), as well as the pins of an integrated circuit 124 are soldered to single fibers of the fabric 100 (col.4, lines 15-51). A fabric comprising a woven matrix of conductive fibers running in both directions can be used to capacitively or electrically couple electronic components, or in sheet form can serve as an electrostatic antenna (claim 10, 20).

To prevent fibers 110 from making unwanted contact as a result of folding, the fabric 100 may be provided with a non-conductive (insulating, protective, shield, claims 4-8, and 14-18) coating (e.g., a transparent acrylic coating that may be sprayed on) following affixation of the electronic components. Alternatively, an insulating layer 135 may be applied to one or both sides of the fabric 100. Insulating layer can, if desired, be a textile with handling characteristics similar to those of the fabric 100 (col. 4, lines 58-65).

Electrically active textiles can also be created by sewing, embroidery or weaving of conductive material into a substantially non-conductive fabric matrix or substrate. Typically, the threads are formed by spinning together fibers of a polymer (plastic, claim 24) such as KEVLAR® with fibers of a metal.

Another embodiment uses an elastic (e.g., foam, claim 25) panel to provide resistance in a switching mechanism for the circuit.

In yet another embodiment, the strips of conductor material may be coated with a semiconductor to form nonlinear thresholding elements at the overlap regions that prevent false contacts and/or phantom switching. The use of the semiconductor makes the electrical component a transistor, as recited by the applicant in claims 9 and 19.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Post et al., in view of Skszek.

Although Post teaches essentially all of the limitations of the instant invention there is no teaching of using a laser spray process to form the electrical components on the fibers.

However, Skszek teaches a process of laser-based direct-metal disposition (spray) to provide unique physical and mechanical properties including structural strength, and wear resistance to laminate composite materials, which include metal in the structure.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use a laser spray process to form the electrical components on the fibers of the fabric of Post, rather than soldering the metal components onto the fibers, to take advantage of the increased structural strength and wear resistance of the laser based disposition process.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Post et al., in view of Carroll.

Although Post teaches essentially all of the limitations of the instant invention, there is no teaching of using either synthetic or natural leather as a clothing material.

However, Carroll teaches a wearably personal computer system which uses leather as an inexpensive and flexible material in a garment formed with electrical components integrated within the structure. Leather is a very well known material in all types of apparel, and can be easily produced at relatively low cost.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use leather as the flexible material of an electronically active garment.

**Conclusion**


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Several references teaching garments that include electronic components have been cited.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H Muromoto, Jr. whose telephone number is 703-306-5503. The examiner can normally be reached on 8-530, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Calvert can be reached on 703-305-1025. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9302.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

Bhm  
December 12, 2003

  
JOHN J. CALVERT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700

<b>Notice of References Cited</b>	Application/Control No. 10/077,548	Applicant(s)/Patent Under Reexamination SURVE, SWATEE N.	
	Examiner Robert H Muromoto, Jr.	Art Unit 3765	Page 1 of 1

#### U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,555,490	09-1996	Carroll, David W.	361/686
	B	US-6,210,771	04-2001	Post et al.	428/100
	C	US-6,472,029	10-2002	Skszek, Timothy W.	427/554
	D	US-6,080,690	06-2000	Lebby et al.	442/209
	E	US-5,906,004	05-1999	Lebby et al.	2/1
	F	US-6,006,357	12-1999	Mead, James E.	2/160
	G	US-5,771,492	06-1998	Cozza, Frank C.	2/161.2
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	J	US-3,632,966	01-1972	Arron, Stanley	219/211
	K	US-			
	L	US-			
	M	US-			

#### FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

#### NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

MH



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,548	02/14/2002	Swatee N. Surve	05127.00138	3233

22909 7590 06/02/2004

BANNER & WITCOFF, LTD.  
1001 G STREET, N.W.  
WASHINGTON, DC 20001-4597

EXAMINER

MUROMOTO JR, ROBERT H

ART UNIT PAPER NUMBER

3765

005127.00138  
DOCKETED SH

DATE MAILED: 06/02/2004

JUN 4 2004

amend after final /AOA  
due: 9.2.04

Last day: 12.2.04

Please find below and/or attached an Office communication concerning this application or proceeding.

ENTERED  
RECEIVED

JUN 04 2004

BANNER & WITCOFF

# Office Action Summary

Application No.

10/077,548

Applicant(s)

SURVE, SWATEE N.

Examiner

Robert H Muromoto, Jr.

Art Unit

3765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

The abstract of the disclosure is objected to because the recitation "Fibers are disclosed..." and the abstract recites the purported merits of the invention. Correction is required. See MPEP § 608.01(b).

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-22, 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Post et al. '771.

Post discloses the fabrication of electronic devices and circuits, and in particular to the integration of such devices and circuits into textiles (fabrics, clothing material). Post discloses a fabric woven with non-conductive fibers in the warp and a conductive fiber in the weft. The conductive fibers 110 may be continuously adjacent along the weft (substrate). The fibers of the fabric are used to create electrical circuits. The leads of a resistor and a capacitor 122 (claim 11, 21), as well as the pins of an integrated circuit 124 are soldered to single fibers of the fabric 100 (col.4, lines 15-51). A fabric comprising a woven matrix of conductive fibers running in both directions can be used to capacitively or electrically couple electronic components, or in sheet form can serve as an electrostatic antenna (claim 10, 20).

To prevent fibers 110 from making unwanted contact as a result of folding, the fabric 100 may be provided with a non-conductive (insulating, protective, shield, claims 4-8, and 14-18) coating (e.g., a transparent acrylic coating that may be sprayed on) following affixation of the electronic components. Alternatively, an insulating layer 135 may be applied to one or both sides of the fabric 100. Insulating layer can, if desired, be a textile with handling characteristics similar to those of the fabric 100 (col. 4, lines 58-65).

Electrically active textiles can also be created by sewing, embroidery or weaving of conductive material into a substantially non-conductive fabric matrix or substrate. Typically, the threads are formed by spinning together fibers of a polymer (plastic, claim 24) such as KEVLAR® with fibers of a metal.

Another embodiment uses an elastic (e.g., foam, claim 25) panel to provide resistance in a switching mechanism for the circuit.

In yet another embodiment, the strips of conductor material may be coated with a semiconductor to form nonlinear thresholding elements at the overlap regions that prevent false contacts and/or phantom switching. The use of the semiconductor makes the electrical component a transistor, as recited by the applicant in claims 9 and 19:

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Post et al., in view of Skszek.

Although Post teaches essentially all of the limitations of the instant invention there is no teaching of using a laser spray process to form the electrical components on the fibers.

However, Skszek teaches a process of laser-based direct-metal disposition (spray) to provide unique physical and mechanical properties including structural strength, and wear resistance to laminate composite materials, which include metal in the structure.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use a laser spray process to form the electrical components on the fibers of the fabric of Post, rather than soldering the metal components onto the fibers, to take advantage of the increased structural strength and wear resistance of the laser based disposition process.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Post et al., in view of Carroll.

Although Post teaches essentially all of the limitations of the instant invention; there is no teaching of using either synthetic or natural leather as a clothing material.

However, Carroll teaches a wearably personal computer system which uses leather as an inexpensive and flexible material in a garment formed with electrical components integrated within the structure. Leather is a very well known material in all types of apparel, and can be easily produced at relatively low cost.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to use leather as the flexible material of an electronically active garment.

***Response to Arguments***

Applicant's arguments filed 3/26/2004 have been fully considered but they are not persuasive. Applicant argues that Post does not teach "forming an electronic component on either a fiber or over a surface of a piece of clothing material".

It is the examiner's position that Post clearly shows the forming of an electronic component on a fiber or over a surface of cloth material. Especially important disclosures from Post have been italicized above for emphasis, no new recitations have been added to the previous rejection.

As evidence the examiner uses the language provided directly from the applicant's remarks filed 3/26/2004. "...Post describes fabric material wherein the fibers themselves are used to conduct electricity to or from electronic components." This statement alone states that the fibers which are a "surface of a piece of clothing material" are used to conduct electricity. If the fibers conduct electricity then they are part of the "electronic component".

Additionally, also taken from the applicant's remarks, "...electronic components are then connected to the conductive fibers by, e.g., soldering..." This statement describes the forming of an electronic component over the surface of a cloth material. The "electronic component" is soldered to the fabric, which is equivalent to "forming over a surface of a piece of clothing material.", as recited in the claims.

When using the broadest reasonable interpretation, Post clearly anticipates the limitation, "forming an electronic component on either a fiber or over a surface of a piece of clothing material." A direct quotation from Post reads, "The fibers of the fabric are used to create electrical circuits.", electrical circuits are certainly "electronic components" under any definition. The previous rejection remains and is considered proper.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H Muromoto, Jr. whose telephone number is 703-306-5503. The examiner can normally be reached on 8-530, M-F.

Art Unit: 3765

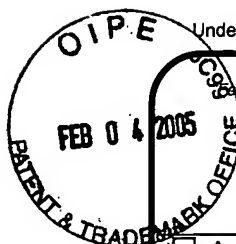
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Calvert can be reached on 703-305-1025. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bhm  
May 27, 2004

  
JOHN CALVERT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



Effective on 12/08/2004.  
 Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4618).

# FEE TRANSMITTAL for FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

**TOTAL AMOUNT OF PAYMENT** (\$) 500.00

**Complete if Known**

Application Number	10/077,548
Filing Date	2/14/02
First Named Inventor	Swatee N. Surve
Examiner Name	R. Muromoto, Jr.
Art Unit	3765
Attorney Docket No.	005127.00138

**METHOD OF PAYMENT (check all that apply)**
☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify) : \_\_\_\_\_

☒ Deposit Account Deposit Account Number: 19-0733 Deposit Account Name: Banner & Witcoff, LTD.

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee

☒ Charge any additional fee(s) or underpayments of fee(s) ☒ Credit any overpayments

Under 37 CFR 1.16 and 1.17

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**FEE CALCULATION**
**1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Fee (\$)	Small Entity Fee(\$)	Fee(\$)	Small Entity Fee(\$)	Fee(\$)	Small Entity Fee(\$)	
Utility	300	150	500	250	200	100	_____
Design	200	100	100	50	130	65	_____
Plant	200	100	300	150	160	80	_____
Reissue	300	150	500	250	600	300	_____
Provisional	200	100	0	0	0	0	_____

**2. EXCESS CLAIM FEES**
**Fee Description**

Each claim over 20 (including Reissues)

Each independent claim over 30 (including Reissues)

Multiple dependent claims

	Small Entity Fee (\$)	Fee (\$)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 30 (including Reissues)	200	100
Multiple dependent claims	360	180

**Total Claims**
**Extra Claims**
**Fee(\$)**
**Fee Paid (\$)**

\_\_\_\_\_ -20 or HP= \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of total claims paid for, if greater than 20.

**Indep. Claims**
**Extra Claims**
**Fee(\$)**
**Fee Paid (\$)**

\_\_\_\_\_ - 3 or HP= \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

HP = highest number of independent claims paid for, if greater than 3.

	Multiple Dependent Claims Fee (\$)	Fee Paid (\$)
Multiple dependent claims	_____	_____

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
_____ - 100 = _____	_____ / 50 = _____	_____ (round up to a whole number) x	_____	_____

**4. OTHER FEE(S)**

Non-English Specification, \$130 fee (no small entity discount)

Other (e.g., late filing surcharge) : Fee for filing a brief in support of appeal

**Fees Paid (\$)**

500

**SUBMITTED BY**

Signature	<i>By S. K. #51,255 FOR</i>	Registration No. (Attorney/Agent)	35,805	Telephone	503-425-6800
Name (Print/Type)	Thomas L. Evans	Date	2/4/05		

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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